



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
Northeast Fisheries Science Center  
166 Water Street  
Woods Hole, MA 02543-1026

May 15, 2007

MEMORANDUM FOR: Northeast Fisheries Observer Program Observers

FROM: David Potter  
Branch Chief, FSB

SUBJECT: Cusk Genetics Sample Collection Request

Scientists at St. Andrew's Biological Station in New Brunswick, Canada have requested cusk tissue samples as part of a study of cusk stock structure in the western North Atlantic. Small muscle samples are to be collected along with additional trip and length information. Cusk are a marketable species and collecting muscle samples may not always be possible. Heart tissue can be collected from those fish that are gutted, or fin clips may be used if no muscle or heart tissue can be collected. Muscle or heart tissue is preferred.

Enclosed you will find a list of complete sampling protocols, data sheets, and ten tissue vials. The researchers realize collecting samples from all stat areas requested may not be possible, so please collect whatever you can. When collecting samples, it is important to CLEAN THE CUTTING INSTRUMENT between samples to avoid cross contamination. Tissue samples should be refrigerated after collection. Samples and accompanying data sheets should be mailed in with your trip. The vials contain RNALater, which is non-toxic and can be readily shipped. This is a temporary sampling protocol so once all ten vials have been sent in, collection of samples will no longer be necessary.

If you have any question please contact Brian Gervelis at [Brian.Gervelis@noaa.gov](mailto:Brian.Gervelis@noaa.gov) or (508) 495- 2383

Thank you.

Attachments:  
Sampling Protocols  
Data Sheets

Enclosure:  
Ten Tissue Vials



## Cusk (*Brosme brosme*) Genetics Sample Collection Instructions

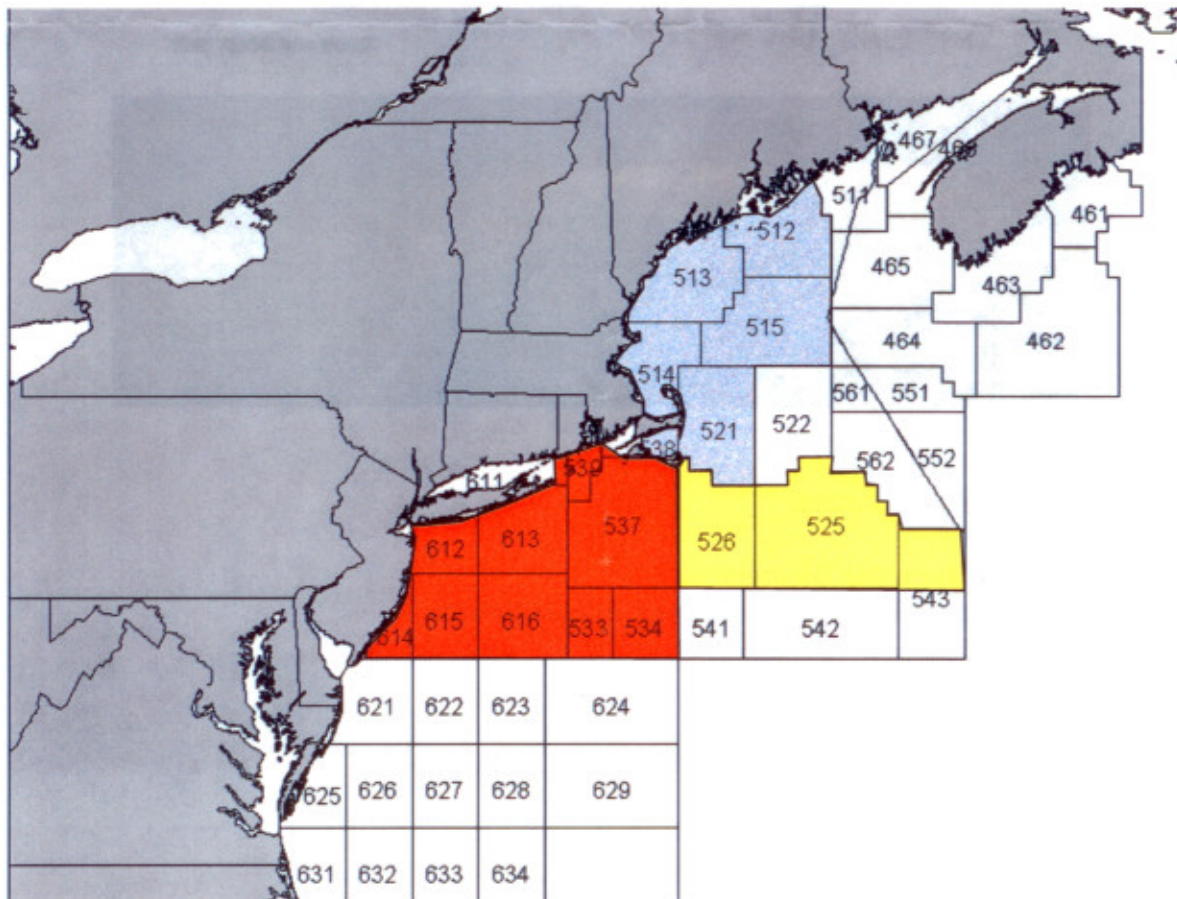
As part of a study of stock structure of cusk in the western Atlantic I am requesting cusk muscle samples from US waters. Ideally I would like 50 samples each from the western gulf of Maine, southern flank of Georges Bank, and from south of Georges bank. Please see the figure below for general delineation of the three areas of interest. If for any reason muscle samples cannot be collected, individually bagged and labelled frozen fish would be fine.

Thank you for your assistance with this project!

### Instructions:

1. Cut a muscle sample (approximately the size of a Tic Tac mint) from each fish and place in tube. Sample can be taken from anywhere there is muscle (cheek, belly, flank).
2. Only tissue from one fish per tube. Ensure that muscle is completely immersed in preservative.
3. Make sure caps are secure after sample has been placed in the tube. Please record the latitude and longitude and date as a minimum on the accompanying sheet. Trip, set and fish data are also very useful.
4. If possible, wipe the cutting implement between samples to minimize cross contamination between the vials.
5. Samples can be kept at room temperature for a few days. For longer term storage please refrigerate or freeze (ideal).

**NB:** the highest quality DNA comes from the freshest fish. Ideally the fish should be dead less than 24 hours when samples are collected.



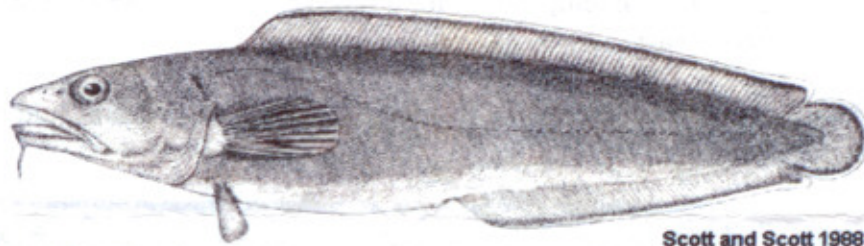


## Cusk (*Brosme brosme*)

Cusk have robust, elongated bodies which are cylindrical before the anus and laterally compressed posteriorly. They are generally greenish brown in colour with some yellow and a white belly. They have a large head and mouth and fleshy pectoral fins. Their most distinguishing features are the continuous dorsal caudal and anal fins which are black and then white along the edges and the presence of a chin barbell. The maximum length recorded in Canadian waters is 110 cm, though most specimens caught measure between 40 and 80 cm.

In the Northwest Atlantic Cusk are distributed from Labrador to Cape Cod with the centre of their distribution in the gulf of Maine and south-western Scotian shelf. They are uncommon in the Gulf of St. Lawrence. Considered a deepwater fish, they have been caught at depths greater than 1000 meters in Canadian waters but have also been, on occasion, observed by divers in shallow coastal areas. They prefer hard bottom and have been observed hiding in crevices.

Cusk are primarily caught in the bottom longline and trap/pot fisheries. They are also caught in other gear types such as bottom trawl and gillnet but in smaller numbers.



Scott and Scott 1988



For more information please contact:

Lei E. Harris

Marine Population Dynamics Biologist

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EXAMPLE ONLY

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### Cusk Genetics Sample Collection Instructions

1. Cut a muscle sample (approximately the size of Tic-tac mint) from each fish and place in tube. Sample can be taken from anywhere there is muscle (cheek, belly, flank).
2. Label the vial with the appropriate sample number. Only tissue from one fish per tube
3. Make sure caps are secure after sample has been placed in the tube. Ensure that muscle is completely immersed in ~~95% ethanol~~ <sup>200A later</sup>
4. Please record the set and fish data on the accompanying sheet. (at least date, lat & long)
5. Wipe the cutting implement between samples to minimize cross-contamination.

**Sex Codes:** 0=undetermined, 1=male, 2=female

**Latitude and longitude** should be recorded in DDMM.mm

**Please return samples to:** Lei Harris, SABS, DFO, 531 Brandy Cove rd, St. Andrews, NB, E5B 2L9 email: [harrisle@mar.dfo-mpo.gc.ca](mailto:harrisle@mar.dfo-mpo.gc.ca),  
phone: 506 529 5838